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ABSTRACT

The purposes of this study were (1) to determine achievement levels of External High School Diploma Program (EHSDP) graduates at Waukesha County (Wisconsin) Technical Institute on the General Educational Development Test (GED) or other standardized tests nationally normed on high school students, and (2) to measure the basic skills level of current EHSDP participants in reading, mathematics, and language. The tests which were selected to fulfill these objectives were the GED and the Test of Adult Basic Education (TABE). An analysis of test scores for the fifteen graduates who participated in the GED indicated standard scores higher than the minimum Wisconsin standards. The thirteen graduates who completed the entire GED test battery surpassed minimum state standards with total scores ranging from 242 to 318 and a mean score of 277.76. Seventeen candidates for graduation completed all sections of the TABE, with total scores ranging from a grade equivalent of 8.4 to 12.9 (the highest attainable score). Of this population, 82.3% scored at 10.0 and above. The highest scores were recorded in language-spelling and reading skills. Lowest scores were recorded in mathematics. The mathematics section of the GED also yielded the lowest scores. From these findings it was concluded that the EHSDP graduates who participated in testing performed adequately on the GED and the program participants who completed the TABE demonstrated basic skills performance at an acceptable level. It was further concluded that mathematics was the weakest area of performance on both tests and warrants additional emphasis in the External High School Diploma Program. (Author)

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FINAL REPORT

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EXTERNAL HIGH SCHOOL DIPLOMA PROGRAM EVALUATION PROJECT - PART II

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U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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ABSTRACT

External High School Diploma Program
Evaluation Project

Testing Phases

The purposes of this study were to (1) determine achievement levels of External High School Diploma Program (EHSDP) graduates at Waukesha County Technical Institute on the General Educational Development Test (GED) or other standardized tests nationally normed on high school students, and, (2) measure the basic skills level of current EHSDP participants in reading, mathematics and language. The tests which were selected to fulfill these objectives were the GED and the Test of Adult Basic Education (TABE), Level D.

An analysis of test scores for the fifteen graduates who participated in the GED testing phase indicated standard scores higher than the minimum Wisconsin standards. The thirteen graduates who completed the entire GED test battery surpassed minimum state standards with total scores ranging from 242 to 318 and a mean score of 277.76.

Seventeen candidates for graduation completed all sections of the TABE, with total scores ranging from a grade equivalent of 8.4 to 12.9 (the highest attainable score). Of this population, 82.3% scored at 10.0 and above. The highest scores were recorded in Language-Spelling, and Reading skills. Lowest scores were recorded in Mathematics. The Mathematics section of the GED also yielded the lowest scores.

From these findings it was concluded that the EHSDP graduates who participated in testing performed adequately on the GED and the program participants who completed the TABE demonstrated basic skills performance at an acceptable level. It was further concluded that mathematics was the weakest area of performance on both tests and warrants additional emphasis in the External High School Diploma Program.

Foreword

This section represents the second part of a three part study which was developed to evaluate the External High School Diploma Program at Waukesha County Technical Institute.

Part I presents the findings of a follow-up study of the first 50 graduates, individuals who terminated the program, and program inquirers.

Part II, which follows, deals with achievement levels of External High School Diploma Program graduates and current program participants as measured by the Tests of General Educational Development (GED) and the Tests of Adult Basic Education (TABE).

Part III focuses on a comparison of External High School Diploma Program competencies with minimum competency requirements for high school graduation

Acknowledgements

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Special thanks is extended to the EHSDP staff for their patience and direction throughout this endeavor.

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Chapter I

Introduction

Statement of Purpose

The purposes of this study were to: (1) determine the achievement levels of External High School Diploma Program (EHSDP) graduates on the General Educational Development Test (GED) or other standardized test nationally normed on high school students and (2) measure the basic skills level of current EHSDP participants in reading, mathematics, and language.

Significance of the Study

Performance on standardized tests is often utilized not only as an indicator of student mastery of subject matter, but also as criteria for measuring program effectiveness. Although the philosophy of the External High School Diploma Program, which is based upon assessment of adult competencies acquired through life experiences, renders standardized testing procedures unnecessary, questions concerning the performance levels of EHSDP participants and hence program effectiveness, have arisen from individuals and groups more attuned to traditional education framework. Providing an opportunity for graduates and program participants to demonstrate performance levels on tests relative to high school equivalency and basic skills will provide preliminary data pertinent to this issue.

The External High School Diploma Program's designation as an alternative to traditional high school completion and to

the GED and Adult High School Credit programs has prompted inevitable comparison and questions of the viability of the EHSDP as a secondary credentialing program. While the nature of each of the programs renders direct comparison difficult, an examination of EHSDP graduate skills on an alternate measure of high school completion will provide a more definitive means of interpreting EHSDP achievement.

One of the basic assumptions underlying the EHSDP is that there are, in fact, many highly competent adults--competent in terms of already possessing requisite basic skills--who lack a high school diploma. The diagnostic phase of the program is designed to measure readiness for entry into the EHSDP and, therefore, indirectly addresses the issue of competence in basic skills.

Utilizing a test of basic skills other than the diagnostic instruments presently employed to measure participants' performance will be significant from two perspectives: (1) successful performance would indicate that, at least among the target population, program participants do indeed possess the requisite basic skills, or (2) inadequate performance would suggest that program modification in the diagnostic phase be considered in order to ensure that those individuals entering the EHSDP do in fact possess adequate skills in reading, writing and computation.

Limitations of the Study

In the design of every study there are demarcations which

indicate how broadly the results of the study may be applied. The limitations of this study are as follows:

(1) No attempt was made to measure the effect of the External High School Diploma Program on test performance.

(2) The study was limited to measuring performance on two selected tests.

(3) The study was limited by the absence of a control group.

(4) Data collection was dependent upon the voluntary participation of the target population.

Organization of the Study

Chapter I has presented an introduction, statement of purpose, significance of the study, limitations of the study and organization of the study.

Chapter II, which follows, is a review of the literature related to the study.

Chapter III contains the description of methodology, including the description of the population, test selection, and data collection.

Chapter IV presents an analysis of the data and the findings based upon test results.

Chapter V includes the summary, conclusion and recommendations.

Chapter II

Review of Literature

Since the objectives of this project include the determination of achievement levels of External High School Diploma Program (EHSDP) graduates on the GED or a similar standardized test and the basic skills level of current EHSDP participants, the review of literature will focus both on research studies related to testing and on an analysis of selected test materials.

Test Related Studies

The review of literature is limited by the availability of published studies relative to alternative high school programs and GED or basic skills tests.

Two studies have compared the performance of adult high school diploma students and traditional high school students. Research completed by Goodman and Peppers (1978) compared the functional level of Wichita Adult Performance Level graduates to that of graduating seniors in an attempt to validate the APL external diploma as equivalent to a regular high school diploma. The authors contend that the APL students should be no more and no less qualified than their high school or GED counterparts since the same skills are required to complete each program.

A functional literacy examination, based on the original APL functional literacy test, was designed by the community Services Department of the Wichita Kansas Public Schools

and administered to fifty high school graduates and fifty APL graduates.

The control group was represented by a sample of fifty students drawn from 154 high school seniors in the 1976 graduating class. The population of the experimental group consisted of the first fifty graduates of the Wichita Adult Performance Level Program. All members of this group completed their studies during the six month period from January 1, 1976 to June 30, 1976, and completed this examination as a program requirement.

Data for the comparison consisted of the scores of both groups on the functional literacy tests in four APL knowledge areas; consumer economics, occupational knowledge, community resources, and government and law.

Based on statistical analysis APL graduates performed significantly better than the high school graduates in the combined areas of knowledge and in the specific areas of consumer economics and occupational knowledge. No significant difference was found in the areas of community resources and government and law.

The researchers concluded that these findings are an indication of the equivalent skills of APL and high school graduates in the areas of reading, writing, communication, computation, and problem solving. They further concluded that:

> The APL program provided an excellent alternative to the standard methods of obtaining a high school diploma, and its graduates suffered no loss of ability or

> competence. Thus the Adult Performance Level Program can be an important alternative to the General Educational Development Program and should be accepted as providing an equivalent high school education to many adults who would otherwise not have this opportunity (Goodman and Peppers, 1978: 163).

Given the findings of the study, Goodman and Peppers made the following recommendations: (1) lifelong continuing education should be readily accessible to all individuals; (2) funding from the Kansas State Department of Education should be provided for future dissemination of APL programs; (3) ongoing communication should exist between various APL programs; (4) comparison research regarding APL and GED graduates should be forthcoming; and (5) graduate follow-up and similar comparison studies should be conducted every three years.

Another study was done comparing the students at Mounds View External High School Diploma Program in Minnesota with graduating seniors (Bauer, 1977). The purpose of the study was twofold: (1) to compare the performance of adult high school diploma students and the traditional student on three dependent variables thought necessary for successful completion of the Tests of General Education Development (GED), namely, vocabulary, language arts, and reading comprehension; and (2) to test the association between two independent variables, attendance and employment, regarding performance in the three basic skill areas.

The twenty adults representing the total enrollment of the Mounds View High School Diploma Program, having an average age of 19.3 years (16-30 range), were compared to twenty

students with an average age of 18 years (17-19 range), who were members of one of the twenty homerooms at Irondale High School. Counselors judged the homerooms as "representative" of twelfth grade students at Irondale High School. Students' willingness to participate facilitated their selection.

Data concerning the independent variables were obtained from cumulative folders and registration forms. The instruments used to obtain basic skill information were the Comprehension and Vocabulary sections of the Gates-MacGinite Reading Tests (Gates) Survey D and the Language Arts section of the Iowa Tests of Educational Development (ITED).

There was no significant correlation between student groups regarding attendance and employment, indicating little impact toward explaining student performance on the tests.

The findings revealed a strong correlation between student groups in the three basic skill areas of vocabulary, language arts, and reading comprehension prompting the conclusion that adults in the High School Diploma Program earned equivalent scores in the three basic skill areas. This conclusion suggests "the High School Diploma Program is a viable alternative to the traditional high school program for many adults" (Bauer, 1977: 19).

Recommendations included in the study are: (1) duplication and expansion of the evaluative study next year to include all High School Diploma Programs in the district and other students in similar programs throughout the suburban area plus a comparable number of graduating students from the

two traditional programs; (2) the development and use of measurements appropriate to the adult learner; (3) identification of crucial factors necessary to successfully complete an adult high school diploma program; (4) identification of an instrument which gives an adequate measurement of adults' reading levels; (5) program and curriculum design to facilitate adults' implementation of the High School Diploma Program.

A comparison study of GED candidates' scores on the APL Survey and GED test was done in Cook County, Illinois (Cervero, 1979). Data were collected in 1977 by administering the APL Survey to 269 persons who were taking the GED test during the Fall of 1977.

The APL Survey used was the forty item multiple choice test developed by the ACT program. The new forms of the GED were in the final stages of field testing at the time. Since the Cook County GED Testing Office was participating in the field tests, the new form of the GED was used for this study.

The resultant correlation was indicative of a statistically significant relationship between the assessments in both tests. After factor analysis of test items, the researchers determined the high correlation between the two tests existed because both were essentially measures of reading ability.

> The measurement of outcomes of basic education programs is substantially the same regardless of whether the GED testing program or the APL testing program is used. If the outcomes measured by the two tests are not different then, one might ask, are the two approaches different in

> any respect? As suggested earlier, the styles, respectively, of the APL and GED approaches may be different with regard to instruction. However, relatively little is known about the comparability of the two instructional approaches. More research needs to be done in this regard (Cervero, 1979: 239).

Research by Boyet and Dauzat (1978) addressed the credibility of two adult education standards used as eligibility criteria for the GED test in Louisiana. In 1976-77 the Louisiana Tech University Research and Curriculum Development Project in collaboration with the University of Texas conducted a comparative analysis of performance on the California Achievement Test (CAT) and the Adult Performance Level (APL) Survey.

The two hundred thirty-six adults were divided into an experimental group and a control group. Both groups were given the California Achievement Test (CAT) and the Adult Performance Level (APL) Survey with preference for the study given to those below ninth grade on the initial CAT. The control group was instructed through the traditional adult education program; the experimental group was instructed via lessons related to APL competencies identified by the University of Texas. The analysis was based on results of one hundred thirty-six students who had pretests and posttests.

The study found, among other things, that the experimental group out-performed the control group in grade level achievement on the basic skills test. The experimental group also had a greater number of attendance hours and had a higher overall retention rate. There was a similar gain in coping skills.

The study of the Louisiana Tech University Project was extended into 1977-78, but the focus was shifted to those students achieving above ninth grade level on the California Achievement Test. Again, the control group was instructed through traditional adult instruction and the experimental group was taught by APL instruction. The study included five hundred sixteen (516) students at four different sites. Students were recommended for the GED by either the traditional or the APL standard (Dauzat and Dauzat, 1979).

Data were analyzed by observation, and revealed the highest percentage of students initially recommended for the GED and the highest percentage passing the GED had received APL instruction. A lower drop-out rate was also evidenced in the APL group. Consequently, competency based adult education was to be implemented in local areas of the entire state.

Analysis of Selected Test Materials

Test materials examined in this section consisted of the General Educational Development Test battery and selected achievement and basic skills tests.

The tests of General Educational Development (GED) are given to adults who are candidates for a high school equivalency certificate. The purpose of this testing is to measure the achievement of objectives similar to those fulfilled in a secondary school general education program.

In accordance with national policies, the GED Testing Program is operated with state supervision, fulfilling state requirements. Tests are administered at official GED Testing

Centers by a specified examiner. The Testing Centers are located only at institutions whose primary educational mission is consistent with the GED testing program.

The complete battery of Tests of General Educational Development (GED) includes five separate tests: (1) Writing Skills; (2) Social Studies; (3) Science; (4) Reading Skills; and (5) Mathematics. The tests were developed by the Educational Testing Service (ETS).

The revised battery addresses a criticism of former GED tests that the measurement of educational development in Natural Science, Social Studies, and Mathematics is in fact, measuring competence in interpreting literary material and the correctness and effectiveness of expression (Griffiths, 1975: 388). The revised battery reduces the length of the reading passages in the Science and Social Studies tests and reduces the reading level in the Mathematics test. The various reading levels of high school tests and assignments are reflected in the revised edition. The reduction in material results in a time reduction from ten hours on the old GED to six hours on the new (GED Examiners Manual, 1979).

Criticism has resulted concerning significant changes in the new edition, primarily the reduced reading level of passages in the Social Studies, Science and Reading tests. Cambridge reports reading levels of 6.5 to 8.0 in the new GED Social Studies and Reading tests compared with grades 9.0 to 12.0 in the former test. Reading levels in the

Science Test range from 6.5 to 14.0 compared with 9.0 to 12.0 in the former edition (1978).

The Writing Skills Test replaces the former Correctness and Effectiveness of Expression test and measures one's "ability to use Standard English clearly and effectively" (GED Examiners Manual, 1979: 20). Assessment includes the areas of spelling, capitalization and punctuation, language usage, sentence correctness, and logic and organization.

The subject matter in the Social Studies Test, formerly entitled Interpretation of Reading Materials in Social Studies, represents History (25%), Economics (20%), Geography (15%), Political Science (20%), and Behavioral Science (20%). Diverse thinking processes are required, namely, knowledge, comprehension and application of information. Items vary in level of difficulty. Stimulus material includes graphs, pictures, tables, and narratives. Particular attention has been directed toward avoiding questions answered by recall only (GED Examiners Manual, 1979).

The Science Test, formerly entitled Interpretation of Reading Materials in the Natural Sciences, includes two types of questions. One-third are multiple choice based on understanding and application of broad science principles from the material presented. The remaining two-thirds are designed to measure reading comprehension in the sciences and one's ability to understand, analyze, and use the information presented in written passages or other forms. Multiple choice questions related to the stimuli are used as measurement. Fifty percent

of the total test relates to Biology, twenty percent to Physics (GED Examiners Manual, 1979).

In the Reading Skills Test, formerly the Interpretation of Literary Materials, the focus is on reading comprehension, rather than implied meaning, and the associated skills which include the identification of main ideas and concepts and supporting details; the recognition of relationships; the recognition of emotional reactions of characters in passages; the interpretation of descriptive and figurative language, and the identification and determination of conclusions and generalizations. The written passages, followed by related questions, include Practical Reading (15%), General Reading (30%), Prose Literature (30%), Poetry (12%) and Drama (12%) (GED Examiners Manual, 1979).

The Mathematics Test is made up of Arithmetic (55%), Geometry (20%), and Algebra (25%). Ability to solve real life problems is stressed (GED Examiners Manual, 1979).

The Commission of Educational Credit and Credentials has authorized retesting after failing one or all of the tests. Retesting may be done after six months if intensive instruction or independent study has been completed. Unlimited retesting has been suggested; however, after a second failure intensive instruction in the area of failure is required.

Strict guidelines regarding relationship to the intended population, the level of difficulty and the perceived high school outcomes were established in developing the test.

Specifications for each of the tests were drawn by experienced high school teachers and adult educators and reviewed by subject area experts. Multiple item and test reviews and revisions by specialists took place before pretesting.

Educational Testing Service (ETS) conducted a norming study in Spring of 1977 for the GED Testing Service under conditions similar to those of the 1943, 1955, and 1967 norming. A stratified random sample of 7,100 high school seniors from three hundred non-trade high schools throughout the United States and Washington, D.C. were tested. Students selected were considered representative of students who would receive high school diplomas within a few months. One thousand two hundred (1,200) seniors took a certain form of the entire test. The remainder took two forms of each of two tests. The standardization was then based on results of more than 3,500 students who completed a designated form (GED Examiners Manual, 1979: 23). Of the 1,210 seniors in 294 United States high schools who were tested in Spring, 1977, two-thirds earned an average of 46 or above, one-third earned an average of 54 or above, and one-half of the students had an average score of 50 or above (GED Examiners' Manual, 1979: 26).

There is no national minimum score requirement. The prerogative of establishing minimums is left to each state. Commission guidelines suggest several alternatives for successful completion of the GED: (1) a minimum score of 35 on each test or a minimum average of 45 on all five tests;

(2) a minimum score of 35 on each test and a minimum average of 45 on all five tests; (3) a minimum score of 40 on each test or a minimum average of 45 on all five tests; or (4) a minimum score of 40 on each test and a minimum average of 45 on all five tests (GED Examiners Manual, 1979: 27).

Practice tests which parallel the regular GED tests in content, format, and range of difficulty have been developed by Educational Testing Service. Each test is one-half the length of the regular test. Standardization methods similar to those for the full length test were employed. These tests are generally used as a method for determining an individual's readiness for the regular GED test.

In surveying published instruments for measuring competence in the basic skills area, numerous norm-referenced achievement tests were examined. The tests considered appropriate for utilization and comparison had forms geared to the high school and/or junior college grade level. Batteries surveyed included tests in reading, writing and mathematics plus additional subject area tests.

The Comprehensive Test of Basic Skills (CTBS), Form T, published by CTB/McGraw Hill, includes four overlapping levels for grades two through twelve. Levels 1, 2, and 3 are administered at the elementary level; level 4, at the secondary level.

The complete battery includes multiple choice tests in Reading, Language, Mathematics, Reference Skills, Science, and Social Studies.

The Reading portion includes a vocabulary and a comprehension test. The Language Arts section includes a language mechanics, language expression, and a spelling test. The Mathematics portion includes a test in computation and one in concepts and applications.

The standardization procedure for Form T was done on a randomly selected national sample of approximately 34,000 students in grades 2-12 from public and private schools. Normative data were obtained through their test results. Form S (the 1972 edition, which is considered an alternate form of Form T) was administered alternately with Form T. Thus norms for Form T were established in addition to a comparison with Form S (Comprehensive Test of Basic Skills, Level 4, Form T, Examiners Manual, 1975).

STEP II, the Sequential Tests of Educational Progress series, published in 1971, includes four overlapping levels of difficulty: Level 1, grades 13-14; Level 2, grades 10-12; Level 3, grades 7-9; and Level 4, grades 4-6. The entire battery includes six separate tests: English Expression, Mechanics of Writing, Basic Concepts and Computation in Mathematics, Reading Comprehension and Vocabulary, Science, and Social Studies. Separate tests are available on all levels except for Mechanics of Writing which is not tested at Level 1 (STEP II Handbook, 1971).

The tests were intended to measure student progress in terms of broad, general educational goals in various basic skill areas. The primary focus is on the student's ability

to apply general concepts, rather than the demonstration of knowledge for skills pertinent to a specific course.

Normative data for grade 13 were obtained in the fall of 1969. College level tests were administered to a nationwide sample of 1,400 students in grade 13. Most of the standardizing was done in April and May of 1970 on 160,000 students in grades 3 to 12 and in grade 14. Classrooms of twenty-five students for each grade were tested at one hundred different schools. The sample was selected to represent all students in the nation from diverse geographic regions, various size school systems, and public and parochial schools.

The Stanford Test of Academic Skills (TASK) is published on two levels: Level 1, grades 8 to 10; and Level 2, grades 11-12 and 13-14, with three tests in each level; Reading, English, and Mathematics. The Reading test includes one section on vocabulary and one on comprehension. The English portion is divided into three separate parts: (1) capitalization, grammar, and punctuation; (2) dictionary use, reference sources, and the nature and structure of language; and (3) spelling. The Mathematics test measures general mathematical competence, emphasizing arithmetical and numerical concepts, computation and application with minor emphasis on new math. All questions are multiple choice with four or five alternatives each. Emphasis is on power rather than speed.

The publishers describe the intent of this test as "a wide range measurement of achievement in the three R's at any time after instruction in these fundamental academic

skills has been substantially completed" (Gardner et al., 1973: 12).

To develop normative data, standardization was done on two norming groups at different times. The preliminary standardizing was done in May, 1972, at which time the TASK and the Otis-Lennon Mental Abilities Test were administered to over 17,000 students in grades 9-12 in nineteen schools chosen to represent the United States population. Both tests were given so that norms could be established for comparing achievement and scholastic aptitude.

Additional standardization took place in fall of 1972, when 64,921 students in grades 8-13 from thirty-two schools in twenty-nine states were tested. From these results, the computation of norms regarding gains in mean scores from grade to grade were completed.

Basic skills tests are subsumed by most test batteries, but some publishers have developed tests solely for measuring reading, writing, and mathematics. Adult Basic Education programs frequently utilize these basic skills tests to determine placement of incoming students.

The Wide Range Achievement Test (WRAT) is a test battery measuring basic skills achievement on two levels: Level 1, 5.0 - 11.11 yr.; and Level 2, 12.0 to adulthood. The three subtests on each level include: Reading (recognizing and naming letters and pronouncing words out of context); Spelling (copying marks resembling letters, writing one's own name, and writing single words to dictation); and Arithmetic (count-

ing, reading number symbols, solving oral problems and performing written computation). The subtests can be given in any order and require a total of thirty minutes to administer. The Reading and parts of the other two tests are oral tests.

Norming procedures included administration of tests to children and adults, age five to sixty-four in seven states (Delaware, Pennsylvania, New Jersey, Maryland, Florida, Washington, and California). All ethnic groups were included with no economic or intellectual restrictions. Each age group was one-half male and one-half female, selected according to mental ability criteria representing average, superior and inferior (Jastak, 1976).

The Tests of Adult Basic Education (TABE) are achievement tests in the basic skills areas of reading, mathematics, and language. The tests were designed to fulfill a variety of assessment and instructional needs including placement, diagnosis, self-appraisal and instructional gains. Adapted from the 1970 California Achievement Test (CAT), TABE is intended to reflect the language and experience of adults and to measure understanding and application of materials rather than specific knowledge or recall.

The TABE consists of three levels which equate to corresponding levels of the CAT and which measure increasing proficiency in basic skills. The three levels and the corresponding levels and grade ranges of CAT-70 are: TABE, E - CAT, 2 (Grades 2.5 - 4.9); TABE, M - CAT, 3 (Grades 4.5 -

6.9), TABE, D - CAT, 4 (Grades 6.5 - 8.9). TABE content areas include reading comprehension and vocabulary, mathematics computation, concepts and problems, and language mechanics and spelling.

Normative tables between the TABE and the CAT are based on an equating of the two series in 1975. At that time, levels E, M, and D of TABE and Levels 2, 3, and 4 of CAT were administered to approximately nineteen thousand randomly selected students throughout the United States. Norms were then developed for TABE based on the demonstration of the statistical relationship between its two parallel forms and the corresponding CAT batteries. Score can be scaled to a grade equivalent of 12.9 (Tiegs and Clark, 1979).

Chapter III

Methodology

Description of the Population

The target population for the testing component of the evaluation project included two distinct groups. One target group consisted of the first fifty graduates; those individuals who had successfully completed all program requirements and were awarded high school diplomas during the 1978-1979 project year. Twenty-four program participants who had completed the assessment process and were candidates for graduation in May/June, 1980 comprised the second group.

Test Selection

The Tests of General Educational Development (GED) and the Tests of Adult Basic Education (TABE), Level D, were selected as the most appropriate instruments to accomplish the objectives of this study.

The GED was selected on the basis of recommendations from consultants representing the Wisconsin Board of Vocational, Technical and Adult Education and the Wisconsin Department of Public Instruction. The GED's reputation as a nationally known high school equivalency test developed for adults also contributed to the rationale for selection.

The notion of the GED as a measure of comparative performance was supported by an evaluation of the EHSDP conducted by an independent third party in May of 1979. This team of consultants noted the importance of such comparison

to the credibility of the program (Miller & Bahnson, 1979).

Comparison of performance between a competency-based adult high school completion program (APL) and the GED was further suggested by Goodman and Peppers (1978).

The selection of the TABE was preceded by an investigation of the testing program in each of the local school districts and WCTI's Adult Basic Education Department. Testing instruments from each of these programs were then analyzed as to their relevance to the evaluation study.

Two factors were of primary importance in the final test selection: (1) the extent to which the test measured adult basic skills, and (2) the length of time required to complete the test. The test which most nearly met these requirements was the TABE, Level D.

Use of the TABE as a diagnostic tool in various Adult Basic Education Departments throughout Wisconsin, including WCTI's ABE Department, and its suggested use by other competency based diploma programs lend additional support to its selection. The Oregon Competency Based Adult High School Diploma Program Field Test Model 1977 suggests the TABE and the GED as two of several tests to be used in the determination of competency levels (1976). In addition, the TABE is one of several tests used in the diagnostic portion of the Texas APL Competency Based High School Diploma Program (Shelton, 1979).

Data Collection

Through the cooperation and assistance of Paul Speight, Administrator, High School Equivalency Program, Wisconsin Department of Public Instruction and Waukesha County Technical Institute's Guidance and Counseling Department, arrangements were made for participating EHSDP graduates to complete the GED test battery. Telephone contacts were made with the forty-four available graduates from the 1978-1979 project year. This number excluded three graduates who had completed the GED prior to entry into the EHSDP and three who had relocated out of state and were not readily available for testing. Graduates were invited to voluntarily participate in GED testing. Each was assured that confidentiality would be maintained and that GED test results would have no effect on previously issued diplomas. Provisions for anonymity and the option of obtaining a high school equivalency diploma from the Wisconsin Department of Public Instruction provided added incentives for participation. A flexible testing schedule, permitting both individual and group testing, was established.

Initially twenty-three graduates agreed to participate in the testing program; however, several individuals who committed themselves later failed to keep appointments. Generally, two factors contributed to nonparticipation: the extensive time commitment and anxiety about the GED test. In order to relieve some of this same test anxiety on the part of the participants, each was provided with a GED practice test prior to the test date.

A total of fifteen individuals (34.0%) eventually participated in testing with thirteen (29.5%) completing the entire series (Table 1). The group included three males and twelve females ranging in age from 27 to 62. Five different forms of the GED were administered at the WCTI GED Testing Center by Thomas Baranowski, Staff Counselor and Chief Examiner--GED. In accordance with the policy of the center, tests were untimed. Use of an untimed format is supported by Flores and Seaman in their comparative study of performance on timed versus untimed GED tests (1978). Generally, participants completed each test within the standard time of one hour to one and one-half hours per test. Group testing was conducted on February 16, 1980 and March 8, 1980 with nine participants completing the five tests in one sitting at either of these sessions. Others completed the tests at their own pace utilizing two to five testing sessions. All testing was completed between February 16, 1980 and May 1, 1980.

The TABE, Level D was administered to seventeen of the twenty-four candidates for graduation (70.8%) who voluntarily agreed to participate in the basic skills testing component of the evaluation project. The group, comprising fourteen females and three males ranging in age from 25-58, was assured that participation and eventual test results would have no effect on graduation. The same factors of extensive time commitment and test anxiety affected nonparticipation in this group.

Table 1

Graduate Participation in GED
by Number and Percent

	Number	Percent
Participated and completed entire GED series	13	29.5
Participated but did not complete entire GED series	2	4.5
Did not participate in GED testing	29	66.0
TOTAL	44	100.00

Arrangements were made to administer the test at a time and location convenient to the individual participants. It was subsequently administered in individual and group sessions by an evaluation project staff member at WCTI's Menomonee Falls Campus and Downtown Waukesha Campus, and at Oconomowoc High School.

The TABE Manual cautions that results of tests administered in a non-standard manner be interpreted with caution "recognizing that use of normative data implicity requires adherence to standard testing conditions" (Tiegs and Clark, 1976: 6).

However, in an attempt to reduce the anxiety and stress factors, the TABE was administered in an untimed situation following the procedure established by the Adult Basic Education Department at Waukesha County Technical Institute. The time required for each participant to complete the test was recorded by the test administrator. All tests were completed between May 7, 1980 and June 5, 1980.

Chapter IV

Presentation of Findings

Tests of General Educational Development (GED)

An analysis of GED test scores for the fifteen External High School Diploma Program graduates indicate standard scores higher than the minimum Wisconsin state standards (Appendix A, Figure 1).

In Wisconsin two minimum standard score requirements apply to the GED test: (1) a standard score of 35 or above on each test and (2) a total standard score of 225 (or an average score of 45 per test). Each of the fifteen graduates achieved scores above 35 on the individual tests. The thirteen graduates who completed the entire GED test battery also surpassed minimum state standards with total scores ranging from 242 to 318 and a mean score of 277.76. With the exception of one individual who completed only four tests, no graduate scored below 45 on any test (Table 2).

Results of each of the five individual tests are reported in both standard scores and percentile rank in comparison with high school graduating seniors. These results are summarized on Figures 2 through 11. Slight variances in conversion from standard scores to percentile are attributed to the use of several different test forms by the GED Examiner.

The Reading Skills Test yielded slightly higher scores than the other four tests with standard scores ranging from 41 to 69 (Appendix A, Figure 2), a mean score of 56.5, and

Table 2

Standard Score and Percentile
for Each GED Test Section
by Individual Respondent

Respondent Number	Writing Skills		Social Studies		Science		Reading Skills		Mathematics		Total of Standard Scores
	Standard Score	Percentile	Standard Score	Percentile	Standard Score	Percentile	Standard Score	Percentile	Standard Score	Percentile	
1	53	63	58	79	59	82	55	69	53	60	278
2	58	80	60	85	63	90	67	96	61	87	309
3	52	56	53	62	52	59	69	97	48	43	274
4	57	76	58	79	52	58	57	76	54	65	278
*5	39	13	36	8	43	23	41	20			
*6			71	98			60	83			
7	47	38	50	51	50	50	52	57	48	43	247
8	57	76	55	69	55	70	54	65	54	64	275
9	51	53	55	69	58	78	59	82	50	50	273
10	61	87	60	83	60	84	60	83	56	74	297
11	52	56	47	37	51	55	46	35	46	35	242
12	49	45	51	53	56	72	49	48	48	43	253
13	65	94	70	98	63	90	64	91	56	71	318
14	53	63	54	66	56	72	50	52	51	55	264
15	58	80	61	87	63	90	65	93	56	74	303

*Did not complete some sections.

percentiles ranging from 23 to 97. Seven of the fifteen participants were in the 80th and 90th percentile, while only three individuals fell below the 50th percentile (Appendix A, Figure 3).

A mean standard score of 55.9 was achieved in the Social Studies Test with scores ranging from a low of 36 to a high of 71 (Appendix A, Figure 4). Both the lowest and highest standard scores were recorded on this test. Percentiles for the fifteen graduates ranged from 8 to 98, with only two individuals scoring below the 50th percentile and five scoring above the 80th percentile (Appendix A, Figure 5).

On the Science Test scores ranged from 43 to 63 (Appendix A, Figure 6), with a mean score of 55.8. Only one of the fourteen participants scored below the 50th percentile, although percentile scores ranged from 23 to 90 (Appendix A, Figure 7).

Writing Skills and Mathematics scores were the lowest with a mean of 53.7 for writing and 52.4 for math. Standard scores on the Writing Skills Test ranged from 39 to 65 (Appendix A, Figure 8) and percentiles from 13 to 94. Three of the fourteen individuals taking the test scored below the 50th percentile (Appendix A, Figure 9). Mathematics scores ranged from 46 to 61 (Appendix A, Figure 10), with percentiles in the 35 to 87 range (Appendix A, Figure 11). The smallest spread between high and low scores occurred on the Mathematics test. Of the thirteen individuals completing

this test, only one scored above the 80th percentile, while four scored below the 50th percentile.

The lowest score on four individual tests--Writing Skills, Social Studies, Science, and Reading Skills--were attributed to a Vietnamese graduate whose limited use of the English language may have interfered with test performance. While this individual achieved minimum scores above 35 on each of the tests, combined scores for the four tests totaled only 159--an indication that the 225 total score requirement would probably remain unmet.

Tests of Adult Basic Education (TABE)

Seventeen candidates for graduation completed all sections of the Tests of Adult Basic Education (TABE), Level D. An analysis of results indicates total scores ranging from a grade equivalent of 8.4 to 12.9 (the highest attainable score) with one individual (5.9%) scoring in the 8.0 to 8.9 range and five (29.4%) in the 12.0 to 12.9 range. Eighty-three percent of the testing population scored at 10.0 or better (Table 3 and Appendix B, Figure 1). Highest individual test scores were achieved in Language-Spelling and in Reading where 64.6% and 58.9% of the population respectively, scored at the 12th grade equivalent level. The Language-Mechanics Test was the only section in which all participants scored at the 9th grade equivalent level or above. Lowest scores were recorded in Mathematics with 53% scoring at the 9th and 10th grade equivalent level and only 17.6% scoring at the 12th grade equivalent level (Table 4).

Table 3

Grade Equivalent from Raw Score Total of All Sections of TABE Test

Grade Equivalent	Number	Percent
7.0 - 7.9	0	0
8.0 - 8.9	1	5.9
9.0 - 9.9	2	11.8
10.0 - 10.9	6	35.3
11.0 - 11.9	3	17.6
12.0 - 12.9	5	29.4
Total	17	100.0

Table 4

Grade Equivalent from Raw Score
by Sections of TABE Test

Grade Equivalent	Reading		Mathematics		Language Mechanics		Language Spelling	
	No.	%	No.	%	No.	%	No.	%
7.0 - 7.9	0	0	1	5.9	0	0	2	11.8
8.0 - 8.9	1	5.9	3	17.6	0	0	0	0
9.0 - 9.9	0	0	4	23.6	6	35.3	2	11.8
10.0 - 10.9	3	17.6	5	29.4	2	11.8	0	0
11.0 - 11.9	3	17.6	1	5.9	2	11.8	2	11.8
12.0 - 12.9	10	58.9	3	17.6	7	41.1	11	64.6
Total	17	100.0	17	100.0	17	100.0	17	100.0

Although the TABE was administered without time restraints, individual completion times were recorded by the test administrator. Figure 2 (Appendix B) indicates that six individuals completed the test in less than the 137 minutes suggested by the TABE, Level D Manual; ten individuals required more than the allocated 137 minutes. (Accurate total test time for one participant was unavailable.) Although total time ranged from a low of 86 minutes to a high of 307 minutes there appears to be no relationship between testing time and grade equivalent score. The three individuals who achieved total grade equvalent scores of 12.9 all completed in less than the allocated time (Table 5).

Figures 3 through 6 depict grade equivalent scores on scores on individual sections of the TABE. Scores on the Reading Test, including vocabulary and comprehension, ranged from 8.3 to 12.9 with seven individuals scoring in the upper limits (Appendix B, Figure 3). The Mathematics Test, which included computation, concepts and problems, yielded grade equivalent scores of 7.7 to 12.8. No individual scored at the 12.9 level, however two scored at 12.8 and one at 12.4 (Appendix B, Figure 4). The Language-Mechanics Test, incorporating capitalization, punctuation and expression, rendered scores of 9.1 to 12.9 (Appendix B, Figure 5), while the Language-Spelling Test scores ranged from 7.5 to 12.9 (Appendix B, Figure 6). Six individuals scored at the 12.9 level in Language-Mechanics and seven in Language-Spelling. The two lowest scores (7.5 and 7.8) on any section of the TABE occurred on the Language-Spelling Test.

Table 5

Completion Time and Grade Equivalent
by Individual Respondent

Respondent Number	Time (in Minutes)	Reading Test	Mathematics Test	Language Mechanics Test	Language Spelling Test	Total TABE
1	307	12.9	9.2	10.2	12.5	10.7
2	156	12.0	10.5	9.3	11.5	10.8
3	*	12.7	10.3	9.3	7.5	10.3
4	221	11.3	9.8	12.9	12.9	12.6
5	149	10.8	11.0	11.9	12.9	12.0
6	113	12.9	12.4	12.9	12.9	12.9
7	161	10.0	10.0	9.3	12.5	10.1
8	157	11.1	9.3	9.1	7.8	9.6
9	125	12.0	8.3	12.9	12.9	10.5
10	108	12.9	10.0	11.4	11.5	11.5
11	86	12.9	12.8	12.9	12.9	12.9
12	172	10.8	9.1	12.9	12.5	10.8
13	247	12.9	10.0	10.2	9.9	11.1
14	222	8.9	7.7	9.1	9.5	8.4
15	131	8.3	9.8	12.5	9.8	9.8
16	155	12.9	9.6	12.7	12.9	11.5
17	129	12.9	12.8	12.9	12.9	12.9

*Total time unavailable.

Chapter V

Summary, Conclusion and Recommendations

In an effort to ascertain the individual and group performance levels of WCTI External High School Diploma Program participants, fifteen program graduates and seventeen candidates for graduation were administered selected standardized tests.

The specific purposes of this study were to: (1) determine the achievement levels of EHSDP graduates on the GED or other standardized test nationally normed on high school students and (2) measure the basic skills level of current EHSDP participants in reading, mathematics and language.

Procedures for the accomplishment of these objectives involved the administration of the Tests of General Educational Development (GED) to program graduates and the Tests of Adult Basic Education (TABE), Level D to candidates for graduation.

The GED was administered to EHSDP graduates by the GED Examiner at WCTI's GED Testing Center in accordance with the guidelines of the Center. Thirteen graduates completed the entire test battery; two individuals completed only portions of the test. Seventeen candidates for graduation completed all sections of the TABE, which was administered using an untimed format. Utilization of the untimed format necessitates cautious interpretation of test results.

The data collected for this study consisted of scores

derived from these tests. Findings based on an analysis of that data follow.

Each of the graduates who participated in GED testing achieved the required minimum score of 35 or above on each test. Thirteen graduates who completed the entire test battery met the dual Wisconsin minimum standard requirements of a score of at least 35 on each individual test and a total standard score of 225, and were subsequently awarded high school equivalency diplomas from the Wisconsin Department of Public Instruction.

Total standard scores on the GED ranged from 242 to 318, with a mean score of 277.76. Mean scores for each of the five individual tests ranged from 56.5 for the Reading Skills Test to 52.4 for the Mathematics Test.

Total scores in the TABE, Level D ranged from a grade equivalent level of 8.4 to 12.9 with 82.3% of the population scoring at 10.0 and above and 29.4% scoring at 12.0 and above. Highest individual test scores were recorded in the Language-Spelling section, where 64.8% of the population scored between the 12.0 and 12.9 grade equivalent level, and in the Reading Skills section where 59.9% scored in this range. Lowest scores were recorded in Mathematics, with 53% scoring between the 9.0 and 10.9 grade equivalent level, and only 17.6% scoring at or above the 12.0 level.

Based on the findings of this study, it is reasonable to conclude that the EHSDP graduates who participated in testing performed adequately on the GED and that the program

participants who completed the TABE demonstrated basic skills performance at an acceptable level.

It is further concluded that mathematics is the weakest area on both tests, and therefore warrants additional emphasis in the External High School Diploma Program.

Recommendations

Based on these findings the following recommendations are suggested:

(1) Examination of the adequacy of the diagnostic phase of the EHSDP should continue with emphasis on the mathematics area.

(2) Additional studies should be undertaken which focus on:

   (a) a comparison of the achievement levels of EHSDP participants and participants in other high school completion programs.

   (b) an examination of the effect of the External High School Diploma Program on achievement levels.

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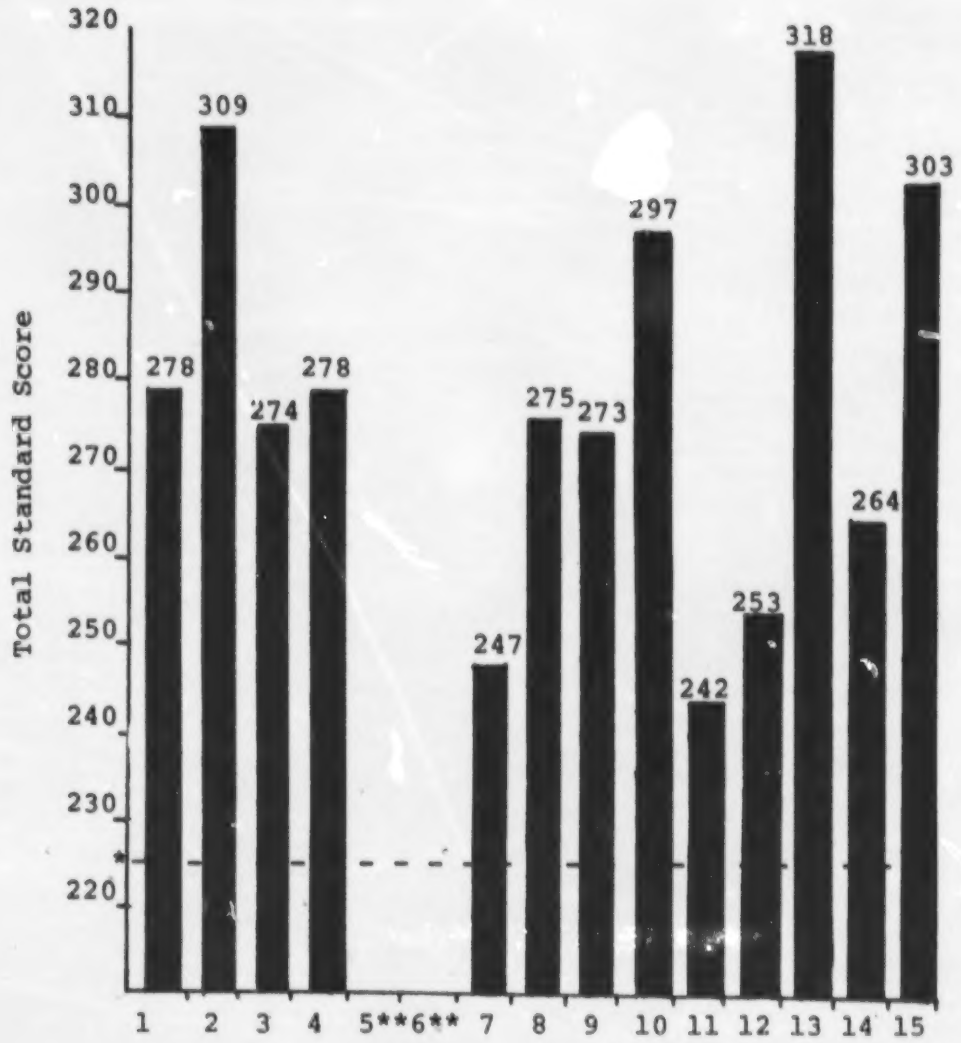
Appendix A

Tests of General Educational Development (GED)

Test Results

Figure 1

Total Standard Scores
for GED
By Individual Respondent



*- - -225- Wisconsin minimum score requirement

** Did not complete all sections

Figure 2

Standard Score for GED Reading Skills Test
by Individual Respondent

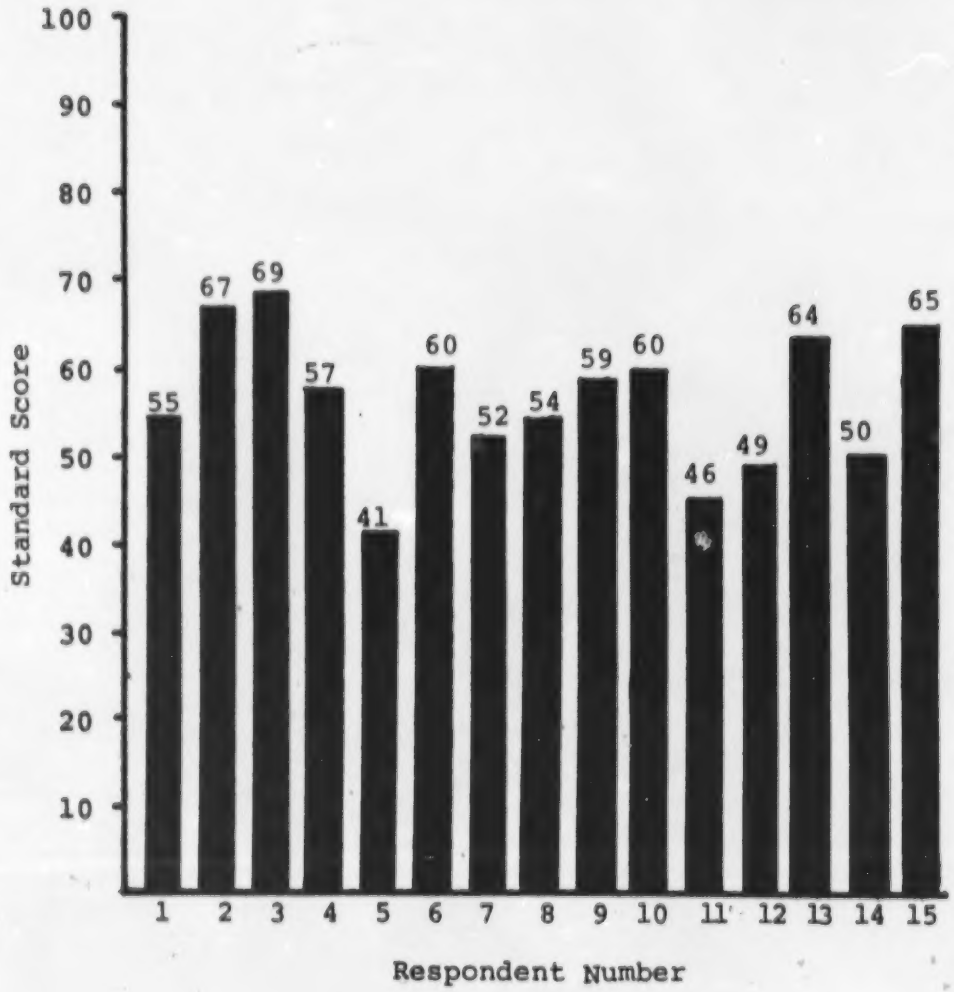


Figure 3

Percentile for GED Reading Skills Test
By Individual Respondent

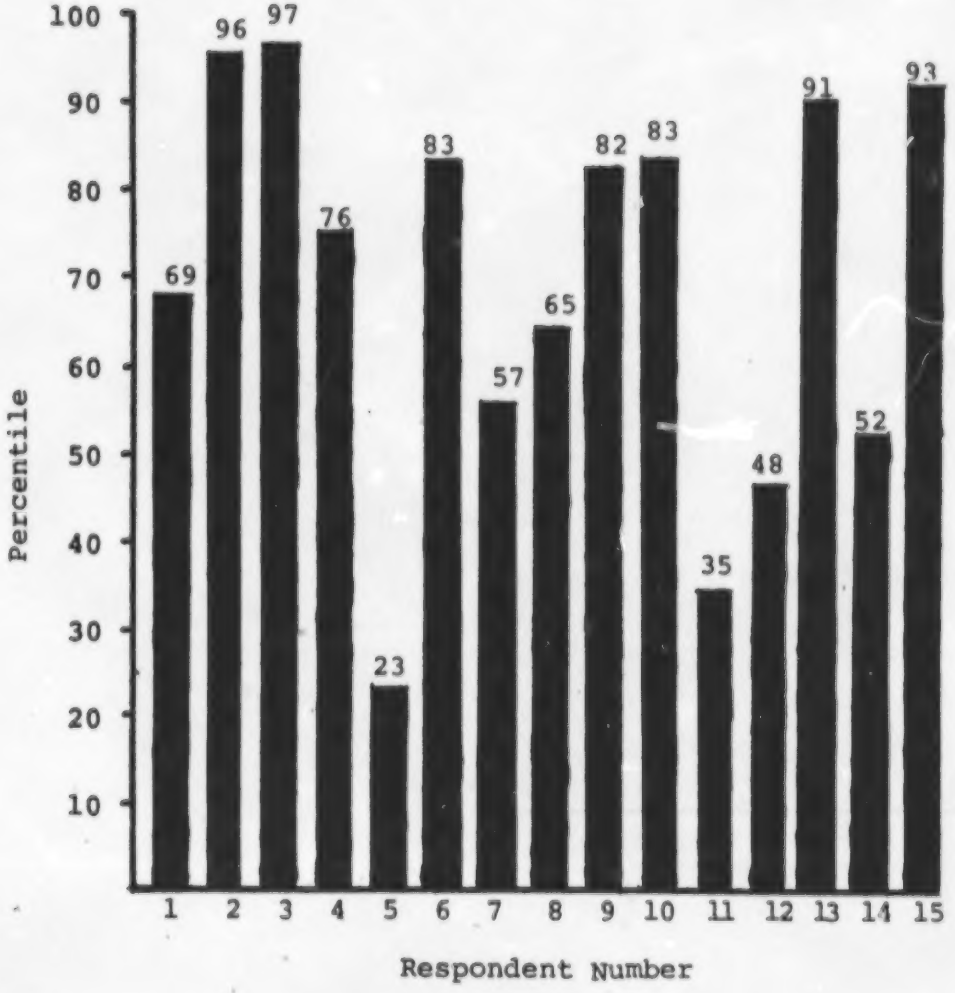


Figure 4

Standard Score for GED Social Studies Test
by Individual Respondent

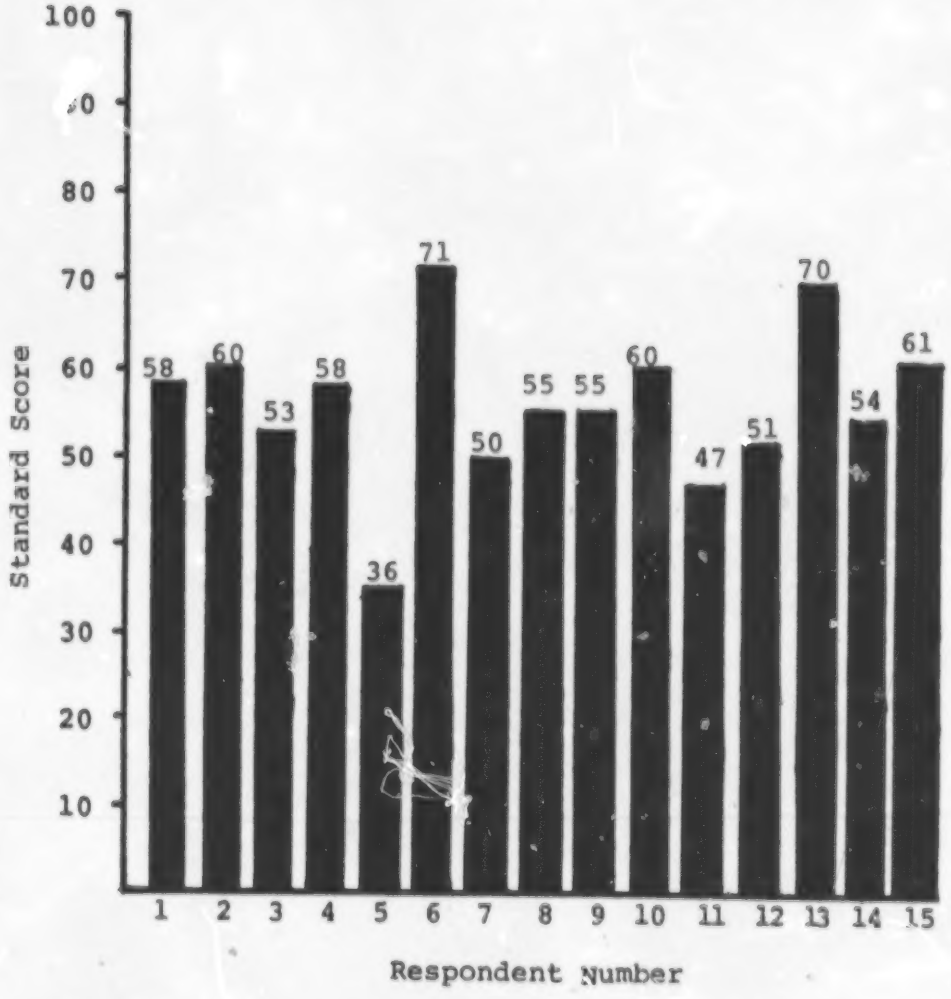


Figure 5

Percentile for GED Social Studies Test
by Individual Respondent

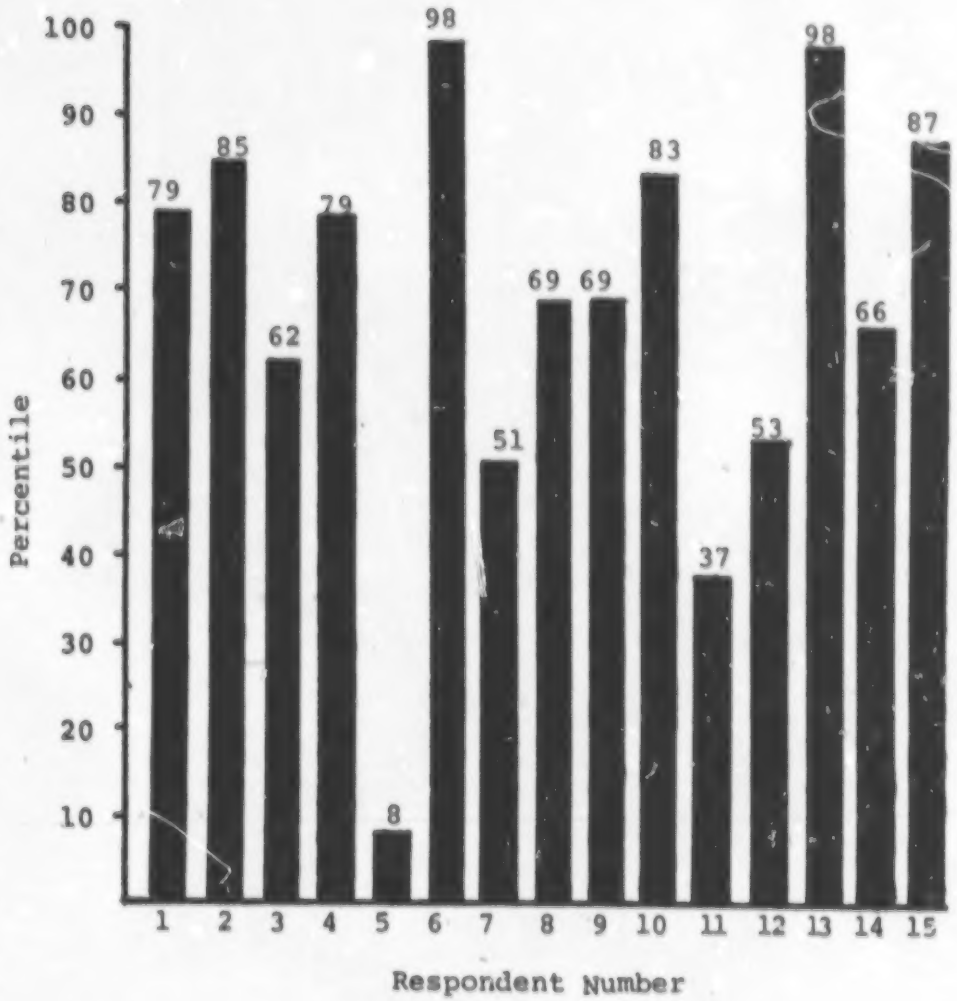
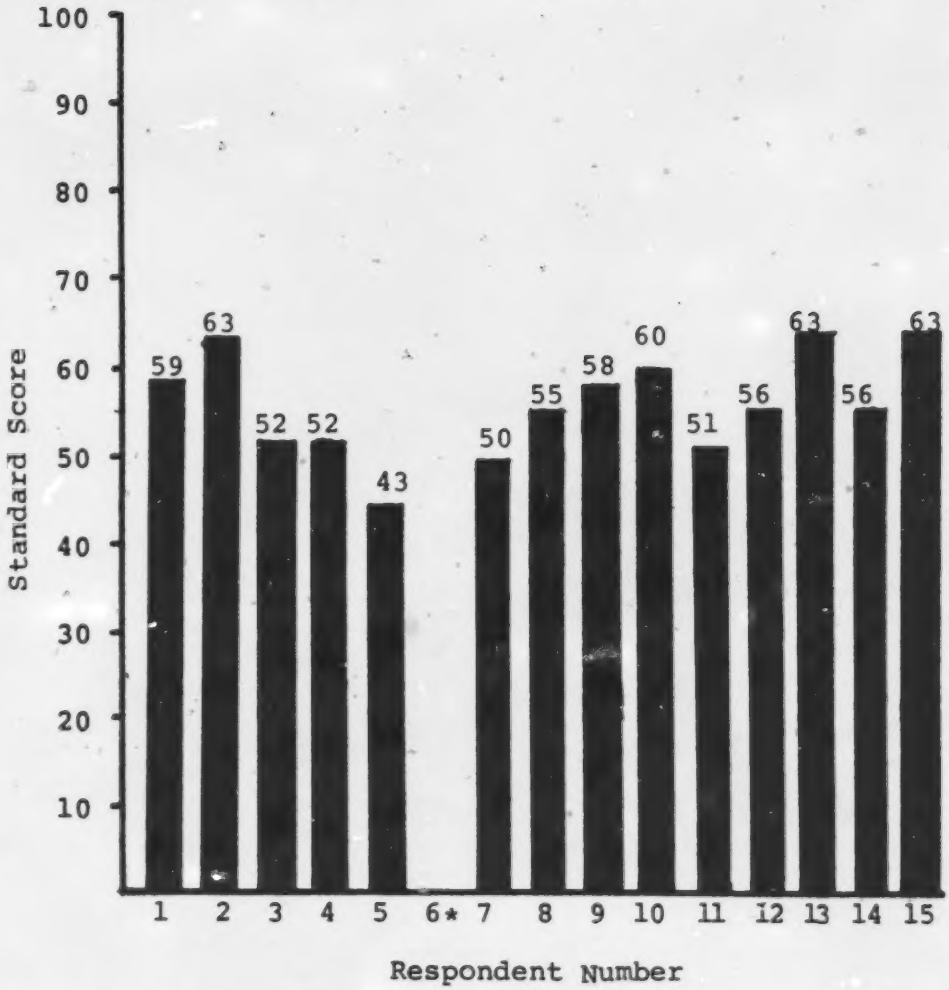


Figure 6

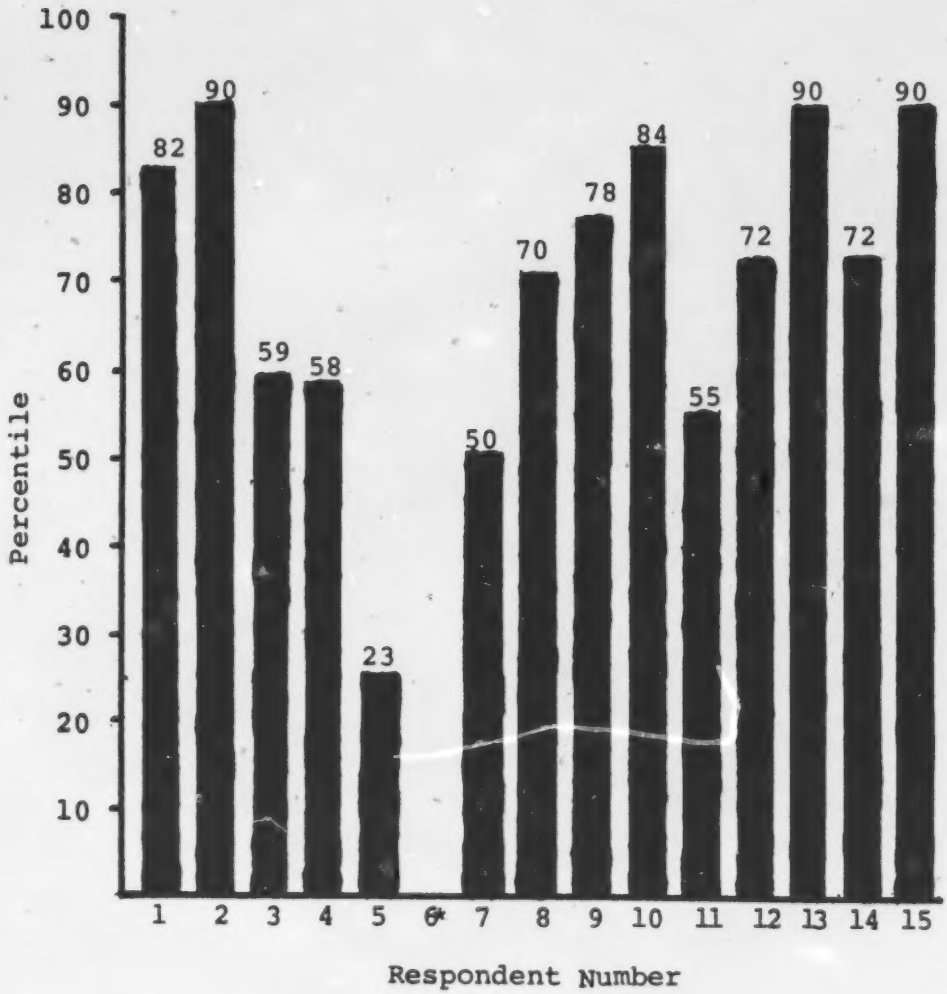
Standard Score for GED Science Test
by Individual Respondent



*Did not take Test 3.

Figure 7

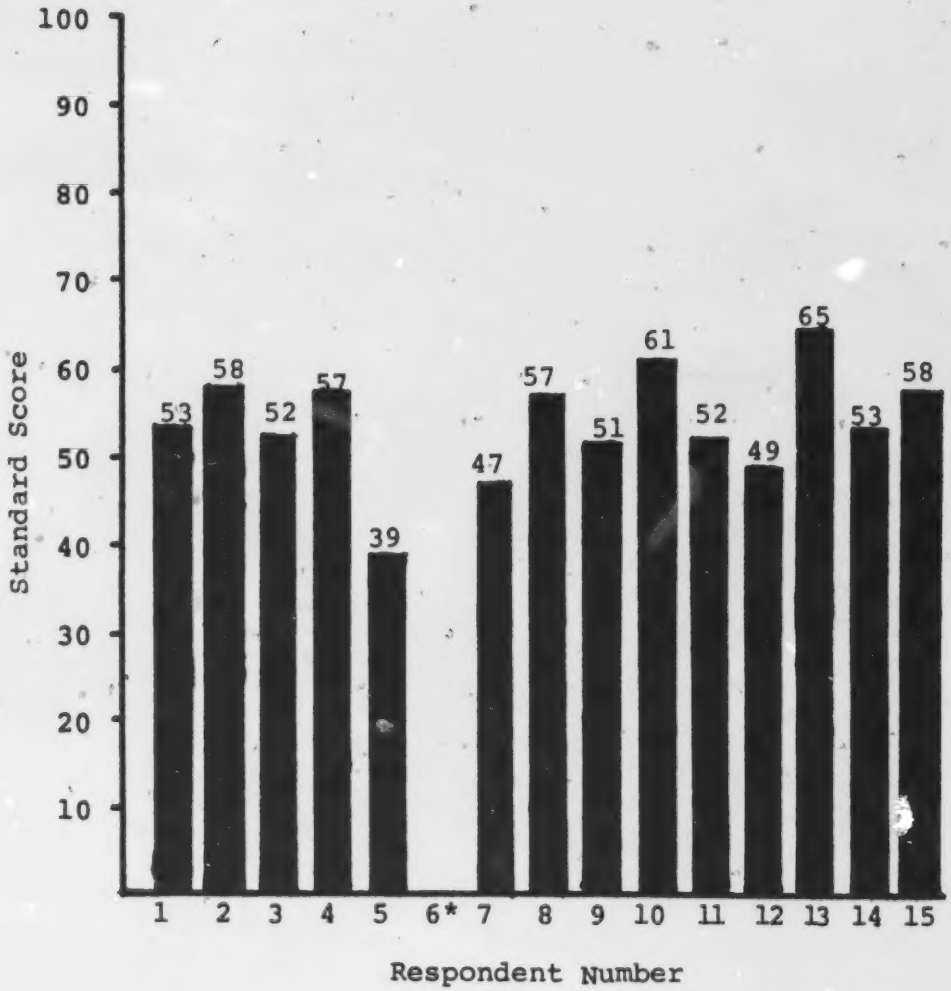
Percentile for GED Science Test
By Individual Respondent



* Did not take Test 3.

Figure 8

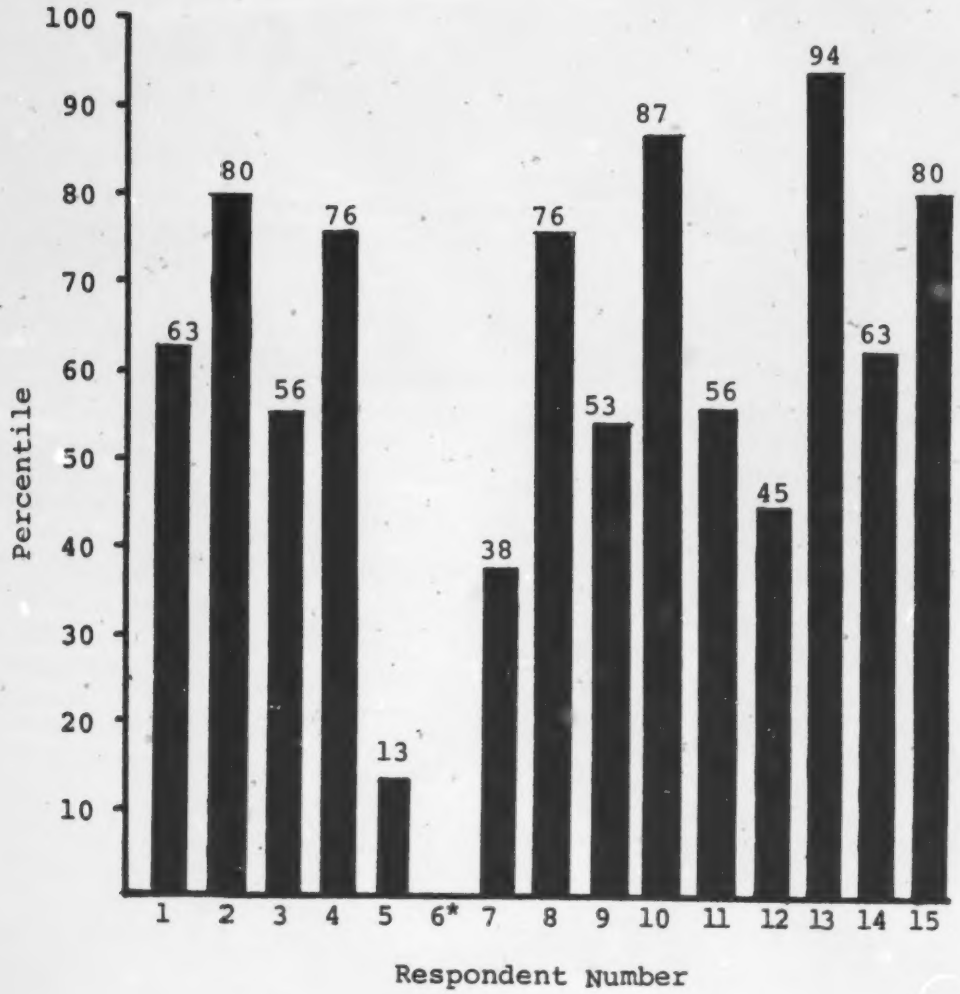
Standard Score for GED Writing Skills Test
by Individual Respondent



*Did not take Test 1.

Figure 9

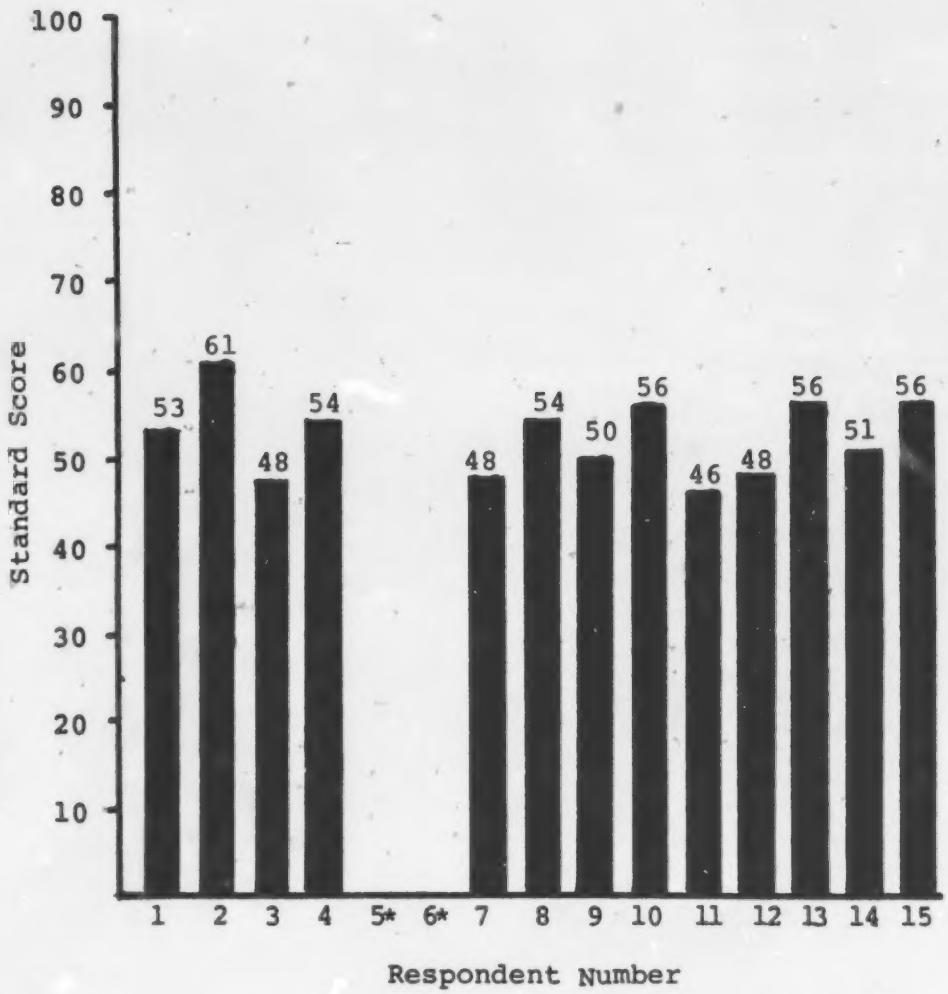
Percentile for GED Writing Skills Test
by Individual Respondent



*Did not take Test 1.

Figure 10

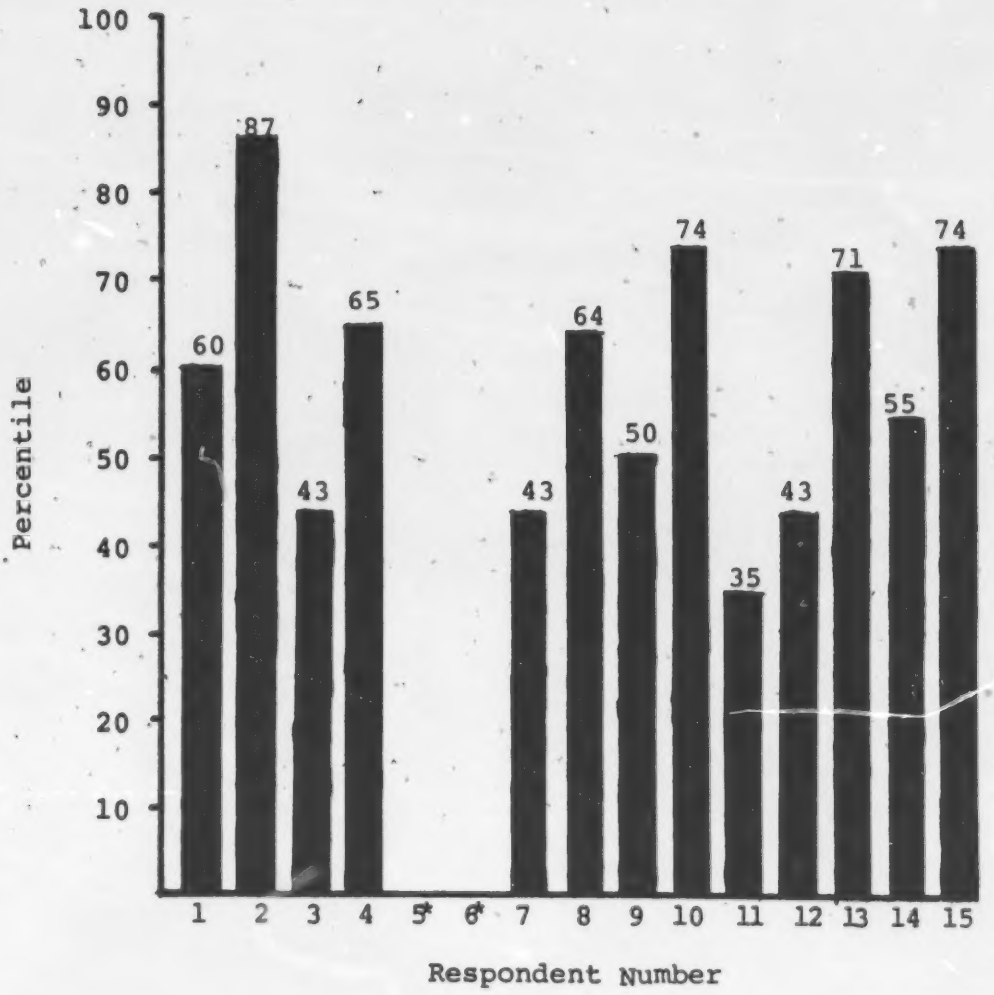
Standard Score for GED Mathematics Test
by Individual Respondent



*Did not take Test 5.

Figure 11

Percentile for GED Mathematics Test
By Individual Respondent



* Did not take Test 5.

Appendix B

Tests of Adult Basic Education (TABE)

Test Results

Figure 1

Grade Equivalent
Total of TABE Tests
by Individual Respondent

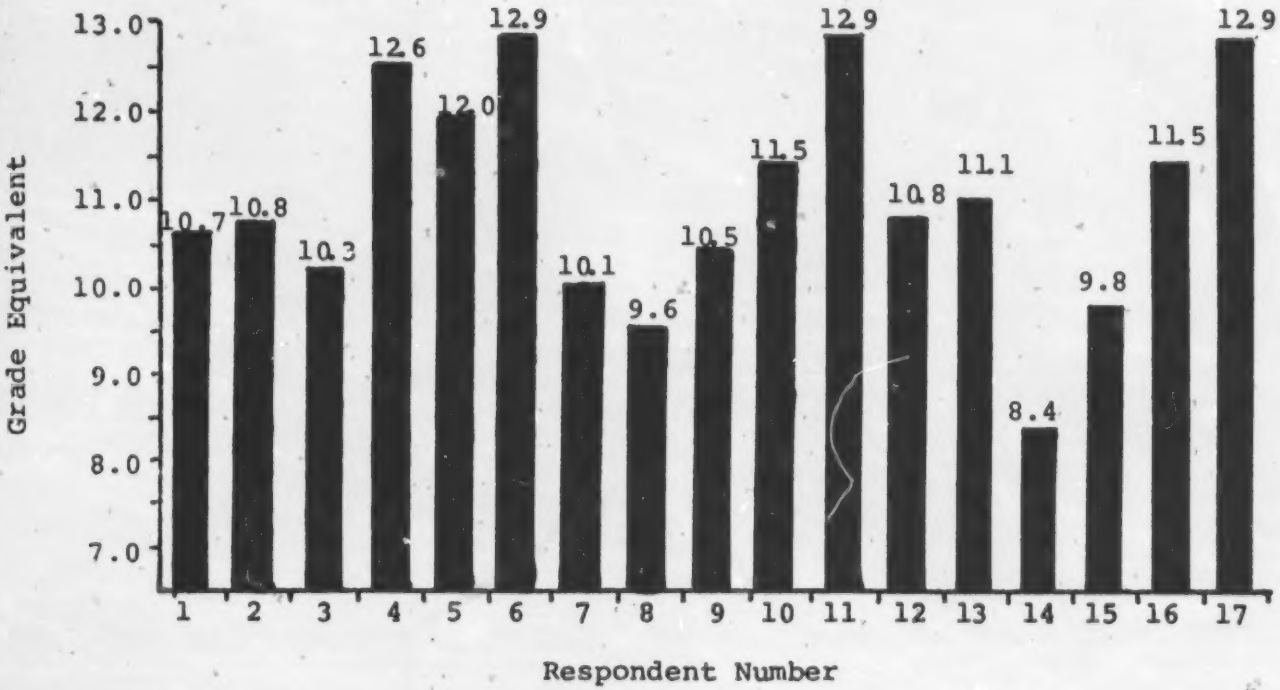
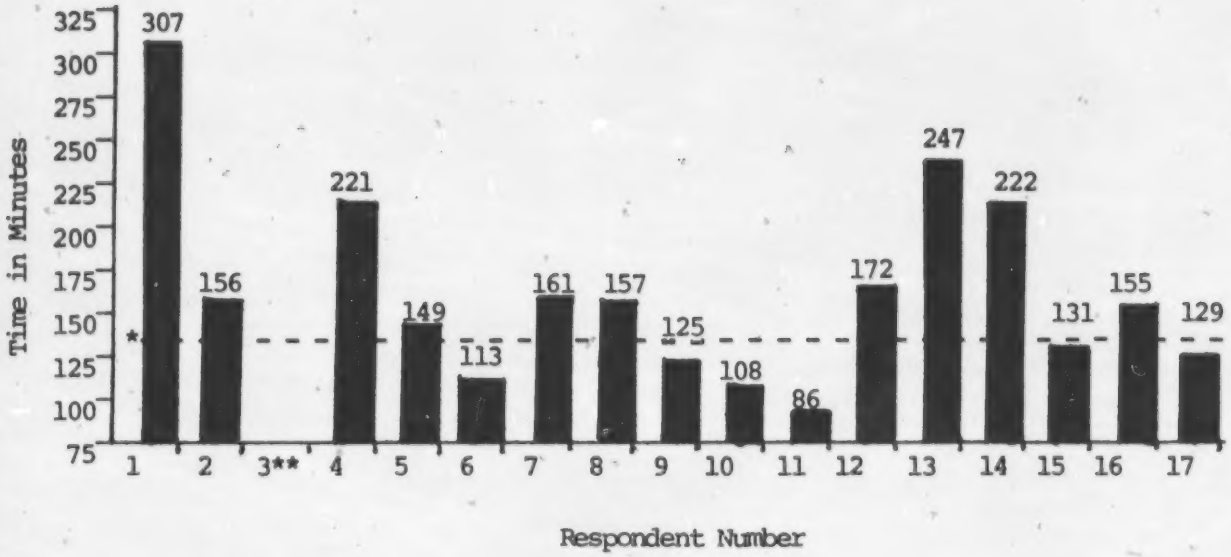


Figure 2

Time Required for Completion
Total of TABE Tests
By Individual Respondent



*- - - Indicates time required for completion of the TABE in a timed situation-137 minutes

** Time unavailable

Figure 3

Grade Equivalent
TABE - Reading Test
by Individual Respondent

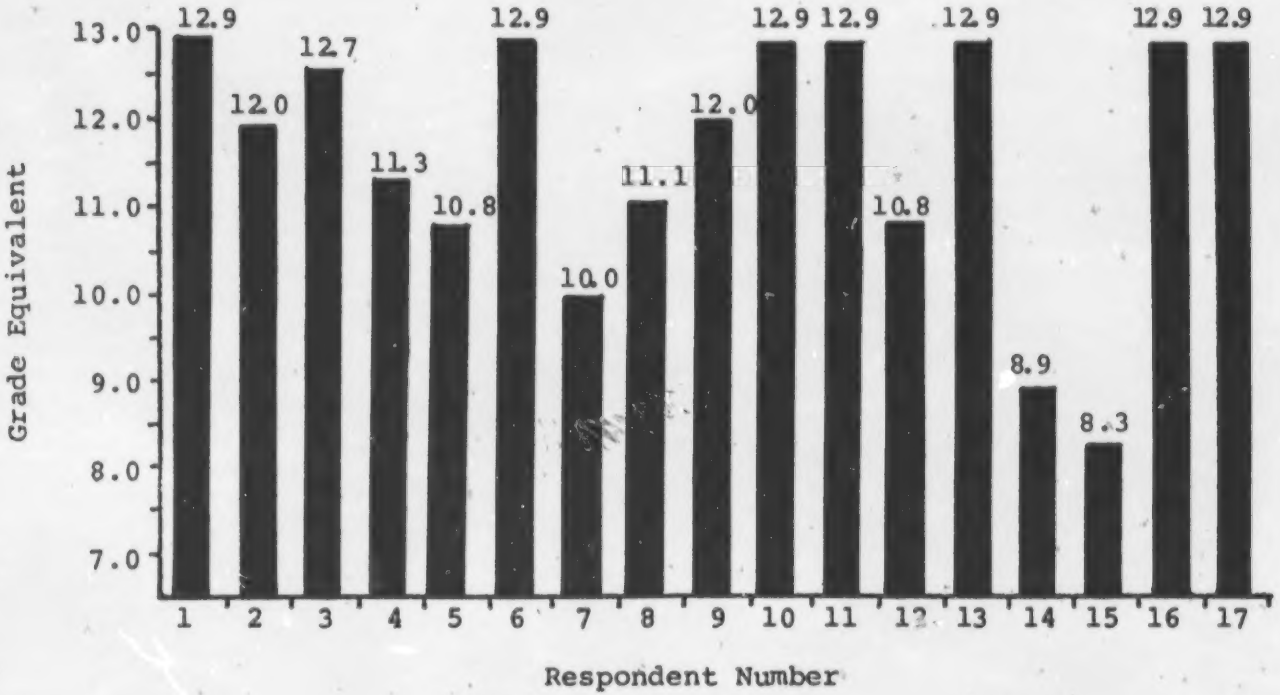


Figure 4

Grade Equivalent
TABE - Mathematics Test
by Individual Respondent

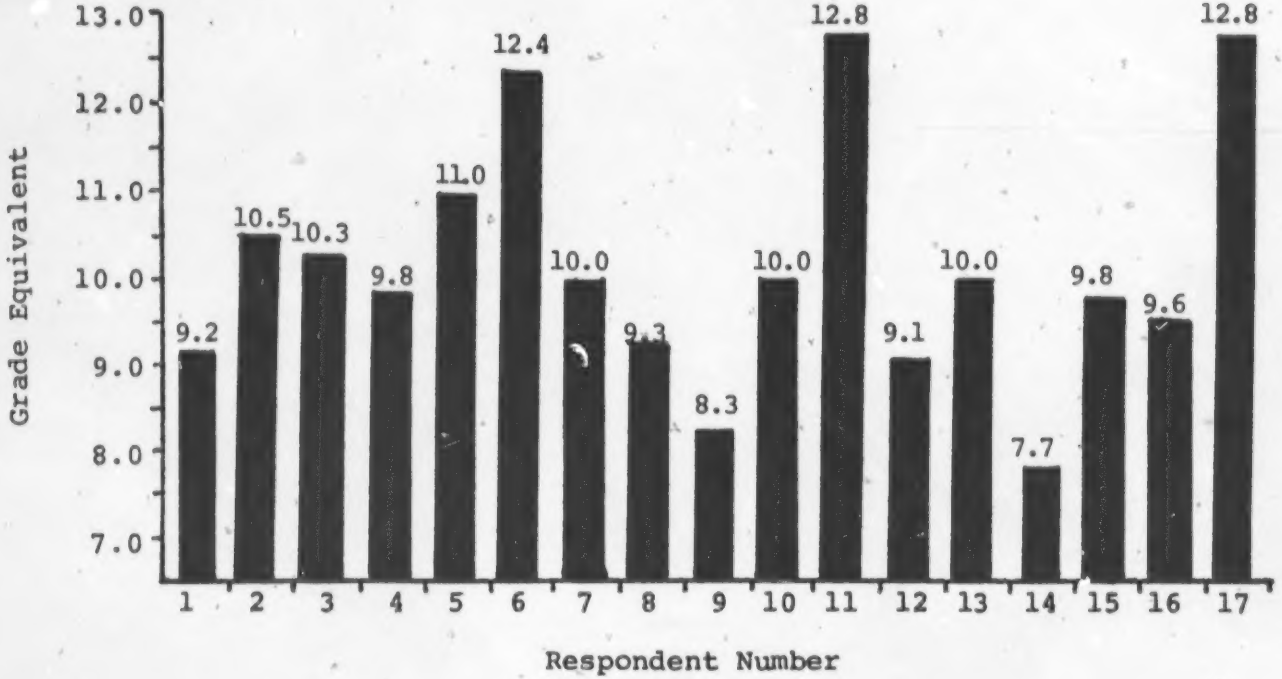


Figure 5

Grade Equivalent
TABE-Language-Mechanics
By Individual Respondent

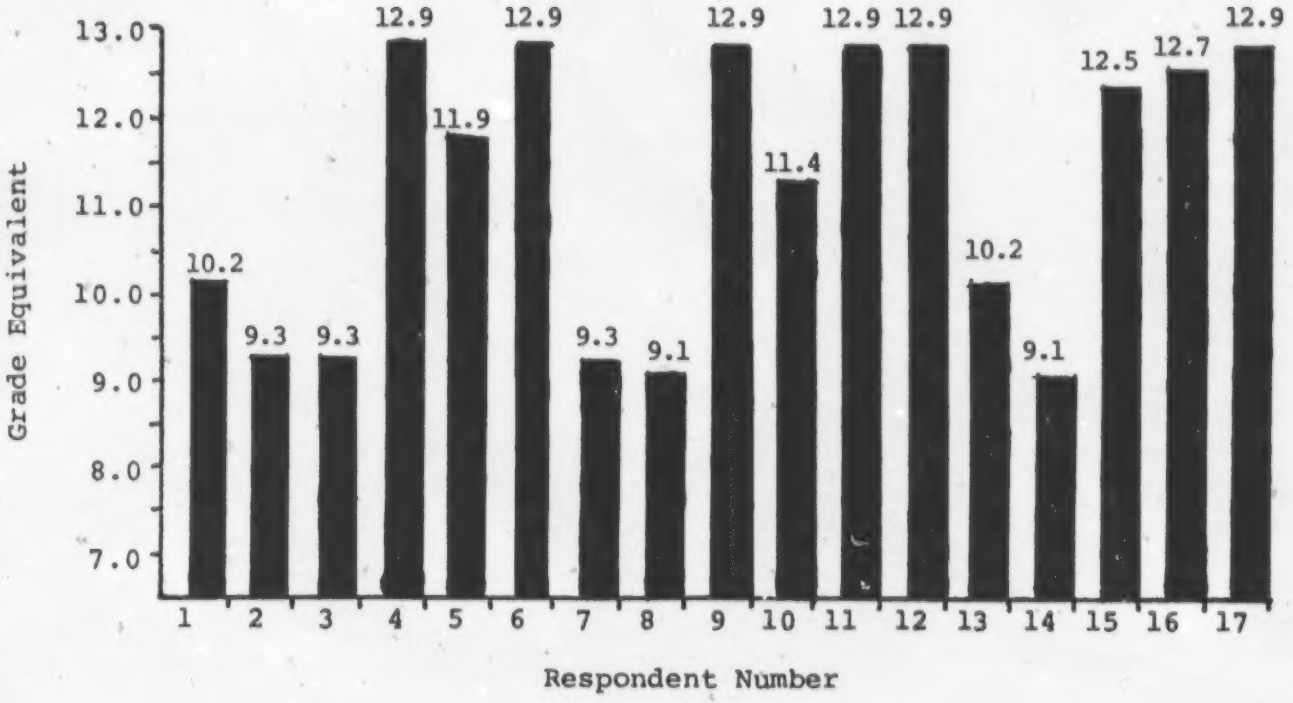


Figure 6

Grade Equivalent
TABE-Language-Spelling
By Individual Respondent